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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/567,035      | 08/17/2006  | Tetsuo Saito         | 285724US3PCT        | 2349             |

  

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|--|------|------------|
| 22850  | 7590 | 01/10/2008 |
| OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. |      |            |
| 1940 DUKE STREET                                 |      |            |
| ALEXANDRIA, VA 22314                             |      |            |

  

|            |  |
|------------|--|
| EXAMINER   |  |
| TO, TOAN C |  |

  

|          |              |
|----------|--------------|
| ART UNIT | PAPER NUMBER |
| 3616     |              |

  

|                   |               |
|-------------------|---------------|
| NOTIFICATION DATE | DELIVERY MODE |
| 01/10/2008        | ELECTRONIC    |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com  
oblonpat@oblon.com  
jgardner@oblon.com

|                              |                               |                              |  |
|------------------------------|-------------------------------|------------------------------|--|
| <b>Office Action Summary</b> | Application No.<br>10/567,035 | Applicant(s)<br>SAITO ET AL. |  |
|                              | Examiner<br>Toan C. To        | Art Unit<br>3616             |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 03 February 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☒ Claim(s) 5-9 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 February 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>2/3/06; 5/3/06</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Abstract*

1. The abstract of the disclosure is objected to because it should not be more than 150 words. Correction is required. See MPEP § 608.01(b).

### *Claim Objections*

2. Claim 1 is objected to because of the following informalities:

In line 16, "H/D of a ratio" should be --a ratio H/D--

In lines 20-21, "(A/At) which is a ratio of the total sum (A)" should be --a ratio A/At of the total sum A--

In line 22, "(At)" should be --At--

Appropriate correction is required.

### *Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mossi et al (U.S. 6,032,979) in view of David et al (U.S. 5,269,561).

Mossi et al discloses a gas generator (10) comprising : a metal housing (12) constituted by an initiator shell (14) and a closure shell (16), a combustion chamber (34) which is formed inside the housing (12) and into which gas generants (86) generating a

high-temperature gas through combustion are loaded, a filter member (40) disposed around the combustion chamber (34), an igniter (90) mounted into the housing (12) and igniting and burning the gas generants (86) inside the combustion chamber (34) and a plurality of gas discharge openings (24) formed on the housing (12) and discharging the gas generated in the combustion chamber (34), wherein either or both of the initiator shell (14) and the closure shell (16) constituting the housing (12) are provided with semi-spherical or semi-oval end plate portions and cylindrical portions (22) having a diameter (D) continuously formed from these end plate portions, a ratio of the bottom distance (L) between the end plate portion of the initiator shell (14) and that of the closure shell (16) to the diameter (D) of the cylindrical portions (22) is in the range from 0.4 to 1.3 (see column 3, line 50); wherein the gas discharge openings (24) are disposed in a single array.

Mossi et al fails to disclose a gas generator wherein, a ratio  $A/A_t$  of the total sum of the surface areas of gas generants to the total sum of the opening areas of the gas discharge opening is in excess of 1300 and not more than 2000, and wherein the gas discharge openings are available in two or more opening diameters, and all the limitations as recited in claim 4

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the gas generator of Mossi by changing a size and shape of the plurality of the discharge opening such that the ratio  $A/A_t$  of the total sum of the surface areas of gas generants to the total sum of the opening areas of the gas discharge opening is in excess of 1300 and not more than 2000, since it has been held

that where the general conditions of the claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art (see *In re Aller* 105 USPQ 233). Further, it is noted that changing the size and shape of the discharge opening would have involve a mere change in the proportions of components. A change in proportion is generally recognized as being within the level of ordinary skill in the art (see *In re Reese* 129 USPQ 402).

With respect to claim 4, David et al teaches the invention wherein, wherein the gas discharge openings (26, 28) are available in two opening diameters (large and small) and disposed in two arrays in a zigzag form, and a ratio of a small opening diameter of the gas discharge opening (28) to a large opening diameter of the gas discharge opening (26) is in the range from 0.1 to 1.0. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the gas generator of Mossi et al by using the teaching of David et al in order to ensure the gas generator is thrust neutral during all phrases of its operation.

#### ***Allowable Subject Matter***

5. Claims 5-9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Toan C. To whose telephone number is (571) 272-6677. The examiner can normally be reached on Mon-Fri (8:00-5:00).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Dickson can be reached on (571) 272-6669. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TTo

January 5, 2008

  
**TOANTO**  
**PATENT EXAMINER**